



Aspen Systems Corporation

July 9, 1981

*Last Draft of section K*  
**RECEIVED**  
JUL 10 1981  
ATTORNEY GENERAL

Mr. Dennis M. Coyne  
Mr. Ken Stevensen  
Minnesota Pollution Control Agency  
1935 West County Rd. B2  
Roseville, Minnesota 55113

Subject: Section K of Twins  
Taxonomy

Dear Dennis:  
Dear Ken:

Enclosed are two copies of Section K which has been reviewed carefully and revised in accordance with your specifications. As you can see in the annotated copy, all of the PAH compounds on your list have now found their specific slot in the taxonomy -- either as synonyms (UF) or as terms (high-lighted in yellow).

After you complete your final review, please give me your telephone feedback and send a written confirmation of approval to Rob Jerome.

Now that we have your approval, final work on the other sections of the taxonomy is progressing rapidly. However, I would appreciate a short "debugging session" over the telephone (to clear up last-minute questions) before I send you the final version of the taxonomy.

I look forward to hearing from you.

Sincerely,

*Sybil*  
Sybil

SJ/bc

Attachments

cc: R. Jerome  
R. McHugh  
C. Schaub

005894

# PROJECT TWINS TAXONOMY

Code at  
This  
Location

Codes at other  
Locations

TERMS

005895

## Chemicals/materials/products

- . Chemical compositions
  - .. Chemical composition of raw materials
  - .. Chemical composition of products/byproducts
  - .. Chemical composition of wastes
- . Chemical concentrations
  - .. Chemical concentrations in water samples
    - ... Chemical concentrations in surface water samples
    - ... Chemical concentrations in groundwater samples
    - ... Chemical concentrations in municipal wells
  - .. Chemical concentrations in soil samples
  - .. Chemical concentrations in rock samples
- . Chemicals used for treating wood
  - .. Creosote
  - .. Petroleum oil
  - .. Zinc chloride ( $Zn^{2+}Cl_2$ )
  - .. Pentachlorophenol
- . Chemicals added to boiler system
- . Chemicals other than those used for treating wood/added to boiler system
- . Organics
  - .. Organic carbon
    - ... Total organic carbon (TOC)
    - ... Dissolved organic carbon (DOC)
    - ... Suspended organic carbon (SOC)
    - ... Tests for organic carbon
  - .. Polynuclear aromatic hydrocarbons (PAH)
    - ... ~~Chrysene~~
    - ... Naphthalene
      - ... Naphthalene compounds
      - ... ~~Acenaphthene~~
      - ... ~~2-methylnaphthalene~~
      - ... Chloronaphthalenes

# PROJECT TWINS TAXONOMY

005896

Code at This Location	Codes at other Locations	TERMS
... Fluoranthene		
... Fluoranthene compounds		
... Benzofluoranthenes	UF	Benzo (k) fluoranthene
... Benzo-(b)-fluoranthene		
... Benzo-(j)-fluoranthene		
... Fluorene		
... Pyrene		
... Pyrene compounds	UF	O-phenylene pyrene, UF 1,2,6,7-tetrahydropyrene
... Benzopyrenes	UF	Dibenzo (a, -) pyrene
... Benzo-(a)-pyrene (BaP)		
... Benzo-(e)-pyrene (BeP)		
... Dibenzo-(a,e) pyrene		
... Dibenzo-(a,h) pyrene		
... Indeno-(1,2,3-c,d) pyrene		
... Phenanthrene		
... Phenanthrene compounds	UF	9,10 Benzophenanthrene
... Meso-naphthodanthrene	3,4	"
... Benzenes		
... Chlorinated benzenes		
... Chlorinated toluenes		
... Methyl/ethyl benzenes		
... Xylenes		
... Toluenes		
... Chlorinated toluenes		
... Perylene		
... Perylene compounds		
... Benzoperylene	UF	Benzo (ghi) perylene
... Anthracene		
... Anthracene compounds	UF	1,2,3,4 - Dibenzoanthracene
... Carbazole		
... Benzanthrane	UF	1,2 Benzoanthracene
... Dibenzo-(a,h) anthracene		

(your list says  
Dibenzo ??)  
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## PROJECT TWINS TAXONOMY

Code at This Location	Codes at other Locations	TERMS
. . . . .	7,12-dimethylbenz (a) anthracene	
. . . . .	Benzo-(a)-anthracene	
. . . . .	3-methylcholanthrene	
. . . . .	Tetracene	UF Naphth acene
. . . . .	Benzanthracene compounds	
. . .	Coronene	
. . .	<del>Biphenyls</del>	
. . .	PCB (polychlorinated biphenyls)	
. .	Cresols	
. .	Phenols	
. . .	Chlorinated phenols	
. . . .	Pentachlorophenol	
. .	Benzene/hexane extractables	
. .	Priority pollutants/extremely toxic substances <u>not listed elsewhere</u>	
. . .	Endosulfan	
. . .	Dioxin or chemicals containing that root	
. . .	Chlorinated compounds	
. . . .	Chlorinated phenols	
. . . . .	Pentachlorophenols	
. . . .	Carbon tetrachloride/chloroform	
. . . .	PCB (Polychlorinated biphenyls)	
. . . .	Chlorinated benzenes	
. . . . .	Chlorinated toluenes	
. . . .	Hexachlorobutadiene	
. . . .	Hexachlorocyclopentadiene	
. . . .	Chlorinated ethanes	
. . . .	Chlorinated ethylenes	
. . . .	Chlorinated methanes	
. . . .	Chloronaphthalenes	
. .	Inorganics	
. .	Bromide	
. .	Fluoride	

## PROJECT TWINS TAXONOMY

Code at This Location	Codes at other Locations
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 TERMS
 

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- . . Carbonate
- . . Bicarbonate
- . . Thiocyanate
- . . Cyanide
- . . Chloride
- . . Sulphate
- . . Silica
- . . Metals
- . . . Arsenic (As)
- . . . Barium (Ba)
- . . . Boron (B)
- . . . Cadmium (Cd)
- . . . Calcium (Ca)
- . . . Chromium (Cr)
- . . . Cobalt (Co)
- . . . Copper (Cu)
- . . . Iron (Fe)
- . . . Lead (Pb)
- . . . Lithium (Li)
- . . . Magnesium (Mg)
- . . . Manganese (Mn)
- . . . Mercury (Hg)
- . . . Molybdenum (Mo)
- . . . Nickel (Ni)
- . . . Potassium (K)
- . . . Selenium (Se)
- . . . Sodium (Na)
- . . . Zinc (Zn)
- . . Nutrients
- . . . Nitrogen
- . . . . Total nitrate and nitrite ( $\text{NO}_3 + \text{NO}_2$ )
- . . . . Nitrate nitrogen ( $\text{NO}_3$ )

668-3

# PROJECT TWINS TAXONOMY

Code at  
This  
Location

Codes at other  
Locations

TERMS

- . . . . Nitrite nitrogen (NO<sub>2</sub>)
- . . . . Kjeldahl nitrogen
- . . . . Organic nitrogen
- . . . . Ammonia nitrogen (NH<sub>4</sub>, NH<sub>3</sub>)
- . . . Phosphorus
- . Microorganisms
- . . Bacteria
- . . . Aerobic bacteria
- . . . Anaerobic bacteria
- . Gases
- . . Carbon dioxide
- . . Oxygen
- . . Methanes
- . . . Chlorinated methanes
- . Analytical properties
- . . Boiling point
- . . Specific gravity
- . . Specific viscosity
- . . Percent water
- . . Total solids
- . . . Total volatile solids
- . . . Total dissolved solids
- . . Total hardness
- . . Specific conductivity
- . . pH properties
- . Raw materials
- . . Chemicals used for treating wood
- . . . Creosote
- . . . Petroleum oil
- . . . Zinc chloride (ZnCl<sub>2</sub>)
- . . . Pentachlorophenol
- . . Coal tar

← Term cannot be changed; it has to be consistent with term on p. K-1

# PROJECT TWINS TAXONOMY

Code at This Location	Codes at other Locations	TERMS
. . Sodium hydroxide (NaOH)		
. . Sulfuric acid (H <sub>2</sub> SO <sub>4</sub> )		
. . Wood		
. . . Railroad ties		
. Products from refinery operations		
. . Creosote		
. . Coke		
. . Pitch		
. . . Roofing pitch		
. . . Binder pitch		
. . Road tars		
. . Light oils		
. . Heavy oils		
. Byproducts from byproducts operation		
. . Naphthalene		
. . Tar acids		
. . Tar bases		
. . Naphtha oil		
. . Benzenes		
. . . Chlorinated benzenes		
. . . . Chlorinated toluenes		
. . . Methyl/ethyl benzenes		
. . . . Xylenes		
. . . . Toulenes		
. . . . . Chlorinated toluenes		
. . Phenanthrene		
. . Anthracene compounds		
. . . Carbazole		
. . . Benzanthrane		
. . . . Dibenz (a,h) anthracene		
. . . . 7,12-dimethylbenz (a) anthracene		
. . . . Benzo (a) anthracene		

005900

PROJECT TWINS TAXONOMY

Code at  
This  
Location

Codes at other  
Locations

TERMS

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- . . . . 3-methylcholanthrene
- . . . . Benzanthrane compounds
- . Waste products/discarded materials
- . . Wastes from cleaning settling basin
- . . Waste residues from hay/straw filters
- . . Wastes from cleanup of spills
- . . Wastes from cleaning tar cistern
- . . Wastes from cleaning ditches/trenches/drainage tiles/pipes
- . . Condenser water from refinery
- . . Wastewater from retort operations
- . . Boiler blowdown
- . . Wet cut
- . . Volume/amounts of waste products/discarded materials

005901

